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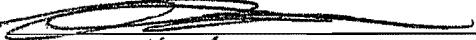
**"ARE WE MISSING THE BOAT?"  
THE U.S. NAVY'S SUPPORT OF 21<sup>ST</sup> CENTURY AMPHIBIOUS OPERATIONS**

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OF THE REQUIREMENTS FOR THE DEGREE OF  
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LCDR MARJORIE E. VIGAL, USN  
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## *Executive Summary*

**Title:** Are We Missing The Boat? The U.S. Navy's Support of 21<sup>st</sup> Century Amphibious Operations

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**Thesis:** As the U.S. Navy balances the multitude of global requirements, the ability to support the U.S. Marine Corps with amphibious shipping is declining and will continue to fall short of adequate support unless a change in naval focus and resources occurs.

**Discussion:** Over the past 20 years there has been a decline in the size of the United States Navy's amphibious fleet, to the point that it has now fallen to a level that marginally meets the lift requirements of the United States Marine Corps with risk. This paper addresses the decline of the fleet, the current challenges and plans, and possible solutions for a stronger amphibious fleet. First it examines the history of the amphibious fleet and its place in the national strategy. Then it will look at the challenges facing the fleet, internal and external, as well as the current U.S. Navy Shipbuilding Plan. Finally, an exploration into the Navy's future strategy and possible alternatives, this provides a chance to rework the future of the amphibious fleet to meet the goals of the nation.

**Conclusion:** Without strong U.S. Navy advocates, the Amphibious Fleet will take the backseat to the rest of the U. S. Navy surface force, and continue to struggle to fulfill the requirements of both the U.S. Marine Corps and other global tasking.

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## **“ARE WE MISSING THE BOAT?”**

### **THE U.S. NAVY’S SUPPORT OF 21<sup>ST</sup> CENTURY AMPHIBIOUS OPERATIONS**

In 2010, as the Marine Corps seeks to focus more of its attention away from a predominantly land warfare nature back toward its amphibious and expeditionary nature, a controversy has arisen within the United States Navy and Marine Corps over the status of the amphibious fleet and its ability to support the nation’s amphibious lift capability. Over the past 20 years, the Navy and Marine Corps have seen a systematic reduction in both the amphibious fleet and the amphibious lift requirement, linked both with a shift in the national strategy and the downsizing of the military force and fleet. This trend is further justified as the number of amphibious ships that have deployed in recent years without their Marine Corps counterpart increases. In judging whether or not the U.S. Navy is “missing the boat,” the current military environment, the national strategy, the latest budget proposals, and the state of the amphibious fleet and force are explored to verify the path of the Navy, amphibious support of the Marine Corps, and what the future might hold.

Sailors and Marines provided a strong expeditionary capability and throughout history have been called upon routinely by the nation as the “911” force to respond to emergent problems worldwide. World War II and the Korean Conflict are examples on one end of the amphibious spectrum, and recent operations in Lebanon, New Orleans, Haiti and Bangladesh are on the other end. Amphibious assault, Non-Combatant Evacuations, Humanitarian Assistance and Disaster Relief, these critical missions reinforce the need for a strong amphibious force. Responding to over one hundred crises in the past twenty years, amphibious forces have more than doubled their response rate of the Cold War, and during this same period conducted numerous sea-based security engagements with international partners. It is this versatility,

integration and adaptability, seemingly second nature to the amphibious force, which is a vital component to the national strategy.<sup>1</sup>

### Amphibious Fleet and the National Strategy

In the 2008 maritime strategy, a joint, Navy, Marine Corps, and Coast Guard effort, the Cooperative Seapower for the 21st Century, the nation's interest are "best served by fostering a peaceful global system comprised of interdependent networks of trade, finance, information, law, people, and governance."<sup>2</sup> This increase in globalization and a focus "that preventing wars is as important as winning wars,"<sup>3</sup> highlights the need for the United States' seapower to be postured globally. To accomplish this global tasking, the maritime services look to six core competencies of maritime power: forward presence, deterrence, sea control, power projection, maritime security, and humanitarian assistance and disaster response.<sup>4</sup> This strategy emphasizes improving the integration and interoperability both within the sea services and outwards to the joint, state, and civilian realms. This partnership is critical as the diverse forces must work together seamlessly in support of defense, security, and humanitarian operations.<sup>5</sup>

The *2010 Quadrennial Defense Review (QDR) Report* reinforces the maritime strategy and its alignment with the national strategy. The QDR describes the complex environment in which the rise of new powers, growing influence of non-state actors, spread of weapons and other destructive enabling technologies pose profound challenges to the international order.<sup>6</sup> Over half of the world's population lives within 200 km of a coast and in the complex environmental landscape these population centers are and will be threatened not only by famine, disease, limited natural resources, and natural disasters, but by a hybrid of conflict, war, terrorism, and criminality of both state and non-state actors. As the United States strives to steadily address the global challenges, the necessity of operating in the littoral environment to

combat these challenges and requirements appears, and the Navy – Marine Corps amphibious team has the assets, agility, and presence to meet the challenges.

This amphibious team is comprised of the landing force, associated air and landing craft, and at the cornerstone, amphibious ships. It is the amphibious ships, with their large storage spaces, embarked Marine force, and ability to launch helicopters and landing craft, that gives the amphibious team autonomy and versatility. This autonomy and versatility is well used by the nation for a wide variety of missions: humanitarian-assistance and disaster relief (HA/DR) operations; peacetime engagement and partnership-building activities; other nation-building operations, reconstruction; operations to train, advise, and assist foreign military forces; peace-enforcement operations; non-combatant evacuation operations (NEOs); maritime-security operations, anti-piracy operations; smaller-scale strike and counter-terrorism operations; as well as larger-scale ground combat operations.<sup>7</sup> Each mission facilitates the nation's foreign and domestic policy, and well suits the complex present and future environments described in the QDR.

Since the fall of the Berlin Wall and the end of the Cold War, the Navy has been reducing the fleet, bringing it down from the "600-ship" Navy of the 1980's to its present size of 282 ships. To accomplish this over 50% reduction, the Navy drastically reduced the number of new ships entering the fleet, as the fleet has aged and ships were decommissioned without replacement. The amphibious fleet similarly suffered the same fate with the decommissioning of over half of the amphibious ship classes.

The size of the amphibious fleet is linked directly to the Marine Corps' amphibious lift requirement, and as the number of amphibious ships have decreased, the Marine Corps' requirement for lift capability has also steadily decreased during the past 30 years, from a Marine



Expeditionary Force plus Marine Expeditionary Brigade Assault Echelon (1 MEF+1 MEB AE = 46,810 troops) in 1982 to the latest reduction to 2.0 Marine Expeditionary Brigade Assault Echelons (2.0 MEB AE = 23,016 troops) in 2006.<sup>8</sup> The *U.S. Marine Corps Concepts and Programs 2009* defines this lift requirement as:

The Marine Corps' forcible entry requirement is based on the Strategic Planning Guidance, directing us to "consider capability alternatives...to support a single [MEF-level] two marine expeditionary brigade (MEB) forcible entry operation." Therefore, the Marine Corps operational requirement is two MEB Assault Echelons (AE) of forcible-entry capability reinforced by an additional MEB for the MPF(F). The two MEB Assault echelon (AE) forcible-entry capability requires 34 amphibious warfare ships (17 per MEB). When forward presence requirements are considered with the 2.0 MEB AE requirement, a total of 38 ships are required. Of these 38, 12 must be aviation-capable large deck ships (LHA/LHD/LHA(R)) to accommodate the MEB's Aviation Combat Element (ACE).<sup>9</sup>

The U.S. Navy's current inventory of amphibious ships falls short of this 38 amphibious warfare ship requirement, with a total of 31 ships in service as of Spring 2010. The discrepancy between the requirement and the inventory is the controversy and either calls to question the validity of the requirement or requires a level of risk acceptance with the reduced capability.

In 2007, the two competing mindsets within the Department of the Navy, the Naval branch with the availability of 30-31 amphibious ships, and the Marine Corps state requirement of 38 ships, sought to bridge this gap by taking a serious review of the amphibious requirements and associated risks. Balancing the risks, requirements, and fiscal constraints, the two services agreed to reduce the ship requirement down to 33 ships.

To arrive at a still-more fiscally constrained goal, Navy and Marine Corps officials in mid-2007 agreed to reduce the 17-ship total to 15 operational ships— 5 of each kind. This 15-ship force requires about 20% of the MEB AE's vehicles and about 12% of its cargo to be shifted to the assault follow-on echelon (AFOE), which creates an additional degree of operational risk.<sup>10</sup>

The 15-ship force per MEB equates to 30 ships, plus three additional ships to account for 10-15% of the amphibious fleet being overhauled at any given time. Even though the number of ships is down to 33, the current amphibious inventory still does not meet this requirement, and the current 2011 proposed 30-year shipbuilding plan does not ensure this level is met until 2021 with the delivery of the LHA-6.

Today's amphibious fleet is comprised of three basic types of amphibious ships: Amphibious Assault (LHA or LHD), considered the "big-deck" as it resembles a medium size aircraft carrier, Amphibious Transport Dock (LPD), and the Amphibious Dock Landing (LSD). These three basic types are comprised of five ship classes that span the past 43 years:

- **8 Wasp (LHD-1) class ships**, commissioned between 1989 and 2001;
- **2 Tarawa (LHA-1) class ships**, commissioned between 1976 and 1980;
- **12 Whidbey Island/Harpers Ferry (LSD-41/49) class ships**, commissioned between 1985 and 1998;
- **5 San Antonio (LPD-17) class ships**, the first commissioned in 2006; and
- **4 Austin (LPD-4) class ships**, commissioned between 1967 and 1971.<sup>11</sup>

According to the Marine Corps, an "11, 11, 11 mix of 11 big decks, 11 LPD's, and 11 LSD's" is a viable plan to meet the goals with an acceptable level of risk.<sup>12</sup> With the current inventory mixture of 10-9-12 and the decommissioning of the Austin Class LPD's after over 40 years of service, the fleet will fall below 30 ships in 2012 and will not return to the 33-ship status until 2018, a 10-11-12 mixture. The Navy further justifies this deficit in the shipbuilding plan with the fact that the decommissioned amphibious ships (LPD's) will be in an inactive status, and available to return to active status if the need arises before the fleet reaches its goal.<sup>13</sup>

As the current size of the amphibious fleet denotes, the amphibious ships and associated expeditionary forces appear to have been out of both the nation and services' focus for a long period of time. With the release of the QDR and a change in the national strategy, this tide of amphibious neglect appears to be slowly changing. In a March 2010 congressional hearing on the Navy shipbuilding budget, the Navy is focused bringing the fleet of 286 up to the 313-ship Navy, endorsed by the Chief of Naval Operations and the Commandant of the Marine Corps. All three naval representatives, Sean Stackley, Assistant Secretary for the Navy for Research, Development and Acquisition, Vice Admiral John Blake, Deputy Chief of Naval Operations for Integration of Capabilities and Resources, and Lieutenant General George Flynn, Deputy Commandant for Combat Development and Integration highlighted the necessity of the amphibious warfare ships and acknowledge the near term shrinking of the fleet. Notable in the congressional hearing is the challenge facing Navy shipbuilding, achieving the balance between aircraft carriers, submarines, surface combatants, littoral ships, supply ships, and amphibious ships. The strong advocates from the Marine Corps, Commandant of the Marine Corps (General James T. Conway), and the Deputy Commandant for Combat Development and Integration, (Lieutenant General George J. Flynn), highlight the deficiencies within the amphibious fleet, yet the lack of a strong Navy advocate hampers the amphibious voice when set against the rest of the Naval Fleet.

It is the future conflicts that are a chief challenge for military leaders and will help to shape the future of the Navy. Vice Admiral Blake noted that "our amphibious warfare ships are key enablers in providing forward distributed presence to support missions ranging from theater security cooperation and humanitarian assistance to conventional deterrents and ensuring access for the joint force."<sup>14</sup> And despite this apparent amphibious necessity, amphibious ships fall into

the minutia of the rest of the fleet. It is the strong advocates both within the Marine Corps and the Navy that will ensure adequate support of the amphibious team to meet the Nation's defense strategy and promote foreign policy today and in the future.

### Challenges and Shipbuilding

The challenges to the amphibious fleet come from all angles, internal, external, past and future, all compounding to the issues facing today's amphibious fleet. Naval downsizing, rising cost of ships, long construction time, and changing ship designs work against the fleet, requiring a future vision to design the fleet now for the Navy in ten or more years. New and modified Marine equipment and aircraft further the challenge with compatibility issues to the ships and shipboard environment. The versatility of the ships is the blessing and the curse, as the demand signal for amphibious ships increase from multiple directions; the amphibious ships are conducting fewer deployments with their Marine counterpart onboard.

The subsequent downsizing of the fleet and tightening fiscal constraints slowed the development and production of the amphibious ships. As ships reached the end of their service life they were decommissioned and not replaced. In the past sixteen years, forty-four amphibious ships have been decommissioned, with only thirteen commissioned, six in the past 5 years. This dramatic reduction and reduced procurement contributed to the lack of urgency the fleet has to renew itself. The most notable example of this is seen in the LPD-17 class, which has just recently (in the past 5 years) joined the fleet. Initial procurement in 1996, the LPD-17 San Antonio class program is a prime example of procurement gone awry. Considerable cost growth, schedule delays and construction problems have plagued the program since initial procurement. The first ship in the class experienced a 70% cost growth, and the follow on ships

in the class initially estimated to cost roughly \$750 million each have grown to \$1.2 and \$1.5 billion for the seventh and eighth ships, with the ninth ship expected at close to \$1.8 billion. Attributed to estimating errors as well as the decision to reduce the programs, this dramatic increase makes it difficult to promote a 12-ship class with extreme overages that have occurred with this class.

The amphibious fleet should be able to benefit from a steady procurement rate. As the typical service life of naval ships is 30 years, the amphibious ships typically have service lives of 35 to 40 years. This extended life span should be a benefit to the Navy's overall Shipbuilding Plan, allowing for a steady state approach to the procurement. The Navy's report on the FY2009 30-year shipbuilding plan assumes service life extensions for four existing amphibious ships — two LPD-4s whose service lives are to be extended to 45 years and 47 years, and two LHA-1s, whose service lives are to be extended 43 years.<sup>15</sup> There is also the plan to assume an extension of the service lives of the 12 LSD-41/49 class ships from an earlier goal of 38 years to a new goal of 42 years.<sup>16</sup> These extensions of service life should also allow for the systematic development of the replacement classes and maintenance of a sufficient fleet size.

The Navy initiated the LPD-17 program in the 1990s to provide replacement ships for the Navy's aging Austin (LPD-4) class amphibious ships, and with the numerous cost growth, scheduled delays, and construction problems early in the program yielded the first ship to the fleet in 2006. This essentially forced the service life extension of the Austin (LPD-4) class ships. The initial LPD-17 program was for 12 ships, but realignment over the years have put the program in turmoil, shifting from twelve ships to nine, and with the latest shift back to eleven to promote the 11 – 11 – 11 amphibious mix. The difficulties with the LPD-17 class - changing acquisition strategy, funding instability, immature and constantly changing ship design,

performance and mechanical problems, and delivery of incomplete ships - highlight not only the faults with the Navy's ship design, acquisition, and acceptance processes, but those of the shipbuilder's construction and monitoring practices. The lessons learned from the first two ships of this class have been applied to the remainder of the class as well as for future ship developments.<sup>17</sup>

Scheduled to replace Tarawa Class LHAs, the America (LHA 6) class is currently programmed for procurement in FY 2011, FY 2016 and FY 2021. Designed for the Maritime Prepositioning Force (Future) (MPF(F)), the Navy determined the LHA 6 class would serve the Navy and Marine Corps more effectively in the assault echelon force where they could be employed in Marine forcible-entry operations.<sup>18</sup> This large deck amphibious ship will be the first amphibious ship in decades to be built without a well deck. Designed with enhanced aviation features and other improvements, the well deck was sacrificed to stay within the envelope of the Wasp-class hull.<sup>19</sup> While the lack of a well deck is acceptable for a MPF (F) platform, where the offload of vehicles and equipment is conducted either sea based or pierside, it is not for the regular amphibious assault echelon force, where time is critical and the expeditious offload of vehicles and equipment is vital. In recent congressional hearings, Lieutenant General Flynn, USMC, highlighted this discrepancy and although the first of the class is in the procurement process, the desire remains to return the well deck at the earliest opportunity to the largest amphibious platform.<sup>20</sup> The lack of a well deck will put a burden on the operators, unit commanders and schedulers, and potentially limit the operational potential of this platform.

The last ships in the amphibious arsenal are the LSD 41 and subsequent LSD 49 dock landing ship classes, which will reach the end of their service lives beginning in FY 2025. Currently undergoing the mid-life overhaul, the LSD class electrical improvements are forcing

either antiquated pier facilities to upgrade or homeport reassignments at some facilities, another example of second or third order effects of ship designs. The LSD(X), replacement for the LSD 41 class will begin in FY 2017, with a procurement rate of one ship every other year to minimize funding requirements and level the demand on the shipbuilding industrial base.<sup>21</sup>

In addition to just the number of ships, the Marines also have a role in the challenges that face the amphibious fleet. Getting 22,000 Marines and their equipment onboard fifteen ships is a major undertaking under any circumstances. The balance of troop berthing, vehicle space (in square feet), cargo space (in cubic feet), aircraft deck spots, and landing craft spots have been the embarkation standard of calculations. This elaborate web of information the commanders must navigate to ensure they get all their “stuff” onboard is getting increasingly more difficult. Over the past ten years significant changes have occurred to the Marines’ equipment. Vehicles, aircraft, and equipment optimized for extended combat operations ashore are larger and heavier than their predecessors, posing challenges for the embarkation teams, the landing force, and the ships. These changes only exacerbate the amphibious lift shortfalls, not only in the lift factors (troops, vehicle storage, cargo storage, aircraft, and landing craft), but in a critical sixth factor to the ships themselves – weight. The acquisition and design modifications of an increased number of vehicles of all types, to include mine resistant vehicles, as well as larger assault support aircraft, has increased the weight problem exponentially.<sup>22</sup>

The MV-22 and the Multi-Terrain Vehicle Replacement (MTVR) are two examples of recent Marine Corps developments and acquisitions that have brought challenges to the unit commanders as they prepare to deploy. The MV-22, which is replacing the CH-46 medium lift helicopter, is substantially larger than its predecessor. This, coupled with excessive heat generation and a larger onboard inventory of repair parts, creates obstacles to shipboard

operations. “Design changes are already being made to some of the ships on which the V-22 will deploy to help ensure effective operations on the flight deck and in the hangar deck during maintenance. The changes will also provide increased space for V-22 spare parts.”<sup>23</sup> The changes to the amphibious ships equate to approximately \$34M per LHA/LHD, and include modifications to the fuel and air conditioning systems, flight deck, repair shops, and add a nitrogen generator.<sup>24</sup> Additional changes are also required on all the smaller amphibious ships, the LPD and LSD classes including LPD-17, reinforcing the flight deck to withstand the heat generated while the aircraft is on deck for loading or refueling.

The MTVR was originally designed to weigh approximately 39,000 pounds, shows up at the pier in excess of 48,000 pounds, requiring eight tie downs, two more than its predecessor. When fully armored, the MTVR will not fit through the loading side door of the newest class of amphibious ships, the LPD-17 San Antonio class transport dock ship. Even the smaller more compact versions – the MRAP-all terrain vehicles – are causing storage difficulties below decks on the amphibious ships. These mine-resistant ambush-protected trucks designed with a V-shaped hull cannot be stored in the lower vehicle storage areas of the amphibious ships.<sup>25</sup> These examples exasperate the challenges and further burden the constrained budgets of both services.

In a 2009 congressional report on amphibious ship building, the Marine Corps calculated that the projected 32- or 33-ship amphibious force would roughly meet the lift goal for Vertical Take-Off and Landing (VTOL) aircraft spaces; exceed the lift goal for troops, space for cargo, and spaces for Landing Craft Air Cushion (LCAC) landing craft; and fall short of meeting the lift goal for space for vehicles (Table 1). It is not until the new class of LHA enters service in 2021 that the requirements will be met. In addition to the volume of the lift items, weight, as mentioned before, has become an additional factor to calculate. The amount and the placement,



up high on the flight deck or low in the cargo hull/well deck, have a significant impact on the stability of the ship. Unfortunately, all of these factors, insufficient space, excessive weight, and maneuverability, are being placed on the operational units (Marine and Naval) to resolve, and usually are resolved by leaving some items and in turn, potential capabilities behind.

Shipping renewal, lift capacity, lift requirements and new acquisitions play a role in the amphibious challenges, yet employment or underemployment of these assets that has been a historical challenge. The amphibious fleet's versatility originally taken for granted has quickly evolved to widen the employment opportunities for the amphibious ships. In 1993, the Amphibious Ready Group (ARG) with its embarked Marine Expeditionary Unit (MEU) was an underutilized asset, with the Carrier Battle Group (CVBG) as the force of choice to accomplish crisis and contingency operations. In the wake of the naval strategic policy of *From the Sea*, a shift started to occur in the strategy bringing more emphasis to the littoral regions, and amphibious operations.<sup>26</sup> This shift to the littoral regions became a reality as the amphibious forces are utilized around the world for a variety of missions. The recent conflicts and disasters, Haiti, Lebanon, Arabian Gulf, Horn of Africa, continue to validate this capability. As key enablers, amphibious warfare ships provide forward distributed presence to support missions ranging from theater security cooperation and humanitarian assistance to conventional deterrents and ensuring access for the joint force.

This presence has a price, and although a deployment has not been missed because of the availability of an amphibious ship, last minute changes to the compliment of deployed units have occurred. This disrupts the ARG / MEU team, altering the months of planning and training, and potentially modifying the team's capabilities during deployment. The 31 amphibious ships are tightly scheduled to maximize their support of world operations. MEU deployments, global fleet

stations, humanitarian missions are tightly scheduled and force a compressed timeline for maintenance, training, and recertification before redeployment. The Navy maintains at least a 1.0 dwell on the amphibious ships, which equates to one day at home for every day deployed. Thus when the *USS Kearsarge* (LHD-3) returned from a 182-day MEU deployment in 5<sup>th</sup>, 6<sup>th</sup>, and 7<sup>th</sup> Fleets, she had 182 days in non-deployed status before heading out for a 108-day deployment to 4<sup>th</sup> Fleet. During this period she had to schedule in maintenance, inspections, naval training, recertification, Fleet Week New York, as well as the planning, preparations, and loading for the follow on deployment. This second deployment did not involve a MEU, which would have added in another set of training and coordination requirements into her compressed schedule. After her second deployment, *USS Kearsarge* entered into a 9-month dry dock maintenance period.

In the current era, ARG/MEU deployments are at a relatively steady state, maintaining a one ARG/MEU presence in the operational fleets, 5<sup>th</sup>, 6<sup>th</sup>, or 7<sup>th</sup>. Providing the amphibious forward presence, this team is conducting operations and available for missions throughout the Eastern Hemisphere, Europe, Asia, and Africa. The mastery of the complex operations does not occur overnight, the art of melding the two forces into a cohesive unit with the ability to successfully be pulled apart in various configurations – disaggregate operations, falls to the unit commanders in the six to 12 months prior. Notionally unit (shipboard) level training and maintenance should be completed prior to commencing the group level training six months before deployment. Even in the unit level training time, these ships are continuously being asked to assist other military units in their training, flight deck and well deck qualifications, employment platforms and targets. Generally speaking, any ship underway is an asset, an

opportunity for external training, yet an amphibious ship underway is invaluable, a multi-purpose training opportunity, critical in the eyes of the military schedulers.

The carefully orchestrated deployment training schedule leaves little room for unplanned maintenance and some room for surge tasking. In the reality of the day, the need for an amphibious ship is great, and thus once an amphibious ship completes her basic qualification, she is surge capable; available to get underway when the need arises. The aftermath of Hurricane Katrina and more recently the earthquake devastation in Haiti are perfect examples of this surge capability. The surge may or may not have Marine units onboard, which also has the potential to disrupt the ARG/MEU team training or deployment, as a planned unit may no longer be available, again impacting the deployed force's capabilities.

Maintenance, the final factor in the availability of amphibious fleet, has the potential to derail the best schedules. Unplanned or extended planned maintenance, where the LSD is in a dry docked maintenance availability and additional work or shipyard delays, force the maintenance period to be extended, and subsequently shift or force modify the follow on training and certification process. Even in the near history, delays in construction have forced alterations in the fleet deployments. The delay in delivery of the latest amphibious acquisition, the USS Makin Island (LHD-8), forced ARG deployments to be extended to meet the operational fleets' requirements. Even though the maintenance periods are built into the schedule, it is the combined commitment of the crew, port engineer, shipyards, and contractors that is needed to ensure the work is completed and the ship is operational on time.

The challenges to amphibious shipping are many. Even though training, maintenance, and demanding employment schedules are common throughout the naval fleet, the reduced force size amplifies the challenges. The uncoordinated procurement, retarded ship building, and high

surge rates have presented some unique challenges to the amphibious fleet and may pose similar challenges as the fleet moves forward into the next 30 years.

### Future Strategy and Possible Alternatives

The future of the amphibious fleet is linked with the nation's strategy and what the threats will be in the future. The 2010 Quadrennial Defense Review calls for the services to focus on two objectives: rebalancing the current capabilities and building future capabilities; and, to reform the Department's institutions to better support the warfighters' needs with usable, affordable and truly needed equipment while ensuring taxpayer dollars are spent wisely.<sup>27</sup> The Long Range Shipbuilding plan, a 30-year plan based on the 313-ship battle force, takes these guidelines and is challenged with implementing a force consistent with the navy's six mission areas. This program, an investment average of over \$15 billion per year plan, represents "a good balance between the expected demands upon the battle force for presence, partnership building, humanitarian assistance, disaster relief, deterrence, and warfighting as well as expected future resources."<sup>28</sup> This balances the amphibious fleet against the other Navy ship components, aircraft carriers, submarine, surface combatants, MPF, and supply ships to achieve the 21<sup>st</sup> century naval force. The plan puts the Amphibious landing force at approximately 33 ships, and interestingly highlights the amphibious ship's flexibility as "one of the most flexible battle platforms," drawing upon the demand signal for both traditional Amphibious Ready Group operations and the variety of independent amphibious deployments for presence, irregular warfare, maritime security, humanitarian assistance, disaster relief, partnership building, and theater security cooperation missions.<sup>29</sup> Even with the strong endorsement of the Long Range Plan, the Construction Plan (Table 2) shows a sporadic construction rate, with some lean times ahead for the amphibious fleet. There will be a potential lift capability gap until the eleventh

LPD 17 class landing transport dock is delivered in FY 2015 and an aviation lift gap until the amphibious assault ship (LHA-6) is delivered in FY 2021, Table 3, but the risk is in operational availability since ten ships will be in inventory but not all may be available.<sup>30</sup> This long-range projection also highlights a return to lean times for the amphibious fleet again in 2035, barring changes to the national strategy or procurement policies.

With the national strategy changing and the guidance of the QDR, an ideal opportunity for the Navy to reassess its fleet structure is present. Current indications show the Navy continuing to be a global influence, a part of an activist US foreign policy, covering the entire spectrum of operations from BMD to HA/DR, and interacting with coalition partners.<sup>31</sup> The threats to the nation cover the spectrum, as well, from low-level conflicts and terrorists activities to regional issues and challenges to global order. The Naval Warfare Integration Group recently commissioned the Center for Naval Analyses (CNA) to look at what point might the U.S. Navy cease to be globally influential if the current environment of declining budgets and ultimately shrinking fleet continues. Looking at a ‘global navy’ as one that is dominant, ready, and influential, CNA offered up five options for a future global navy in the fiscally constrained environment (Figures 1-6). All of the options contained compromises, strengthening one area at the expense of others, based on various threat assessments to the U.S. and global stability.

In an environment where the greatest threats to U.S. and global stability could come from any number of low-level conflicts and terrorist activities taking place from Latin America to Africa, and from Southwest Asia to Indonesia or the Philippines, and that partnership with local and regional naval forces, as strong amphibious and expeditionary force is force of choice. CNA presented a “Shaping Navy” option (Figure 3) where the Navy’s power projection is in the form of the amphibious forces. A stronger amphibious fleet is accomplished with some sacrifice

from the Navy's high-end combat credibility forces, reducing the need of the larger platforms (aircraft carriers, Aegis ships, and submarines). Although this appears to reduce the high-end combat visibility in 5<sup>th</sup> and 7<sup>th</sup> Fleets, the Navy would be able to exert its influence on a global scale in conflict avoidance, containment, and de-escalation by effectively engaging with local and regional maritime forces.<sup>32</sup>

CNA's "1+hub" option (Figure 2) also supports the amphibious fleet, while still maintaining the some high-end combat credibility. The combat-credible forces, Carrier Strike Groups (CSG) and other power-projection and strike assets, will focus on one region, Western Pacific (WESTPAC), rather than the current two, Arabian Gulf and WESTPAC, with the amphibious forces focused on the low-end presence, and quick response to emerging instability from non-traditional threats in the other regions.<sup>33</sup> While this maintains the amphibious fleet, it has the potential to shift the fleets, putting more emphasis on CSG in the Pacific, and the amphibious ships in the Atlantic. The remaining options from CNA (Figures 1, 3, and 5) recommend a stronger CSG and strike assets, minimizing the role of the amphibious fleet.

The concept of shifting or concentrating the fleet assets to one coast or another may have significant advantages to the Navy as a whole. The concentration the amphibious ships in one location, for example, Norfolk, VA, gives the Navy the opportunity to leverage greater standardization within the fleet and provide reliable and experienced support networks, maintenance and training, to keep the ships running for 40 or more years. As the LPD-17, MV-22, and MTRV programs have highlighted the difficulties and challenges, a need for prudence and fiscal responsibility is need to fulfill the premise of spending the taxpayers' dollars wisely, and to alleviate the government's, Department of Defense and Department of the Navy, burden of paying to mediate the incompatibility or procuring alternatives to maintain the amphibious

nature of the force. Although both the Navy and the Marine Corps have undergone reforms in their respective design, acquisition and evaluation departments to mitigate the bleeding of the Navy Department funds, the consolidation of assets will further assist in this mitigation through standardization in support, procurement, training and maintenance.

The current employment practices are indicative of the nation's future threats. The consistent practice of disaggregated Amphibious Ready Group / Marine Expeditionary Unit (ARG/MEU), global fleet station (GFS), Humanitarian Assistance missions or the even the quick response for disaster, all combat the threats of today, and similar to the future. The burden on the military leadership is how much the fleet will respond. Changing production and procurement factors and policies help to make the services more fiscally sound. Changing the fundamental focus away from doing everything around the globe allows the Navy to be more efficient. Efficiency that can be translated to the men and women serving on board the amphibious ships, increasing the time for maintenance and training, vital to both the ships and the Marines.

Rebalancing and fiscal prudence can also be found in a stronger commitment to robustly define new ship programs, like LSD(X). Ideas like utilizing the hull of the LPD-17 to design the LSD(X) platform to reduce costs, spacing the procurement of the amphibious assault ships to allow the shipyards and builders to optimize the workforce and supply chains, keep a steady strain on the recapitalization of the amphibious force.<sup>34</sup> As stated before, the LPD-17 class began procurement in 1996, and the first one was not delivered until 2006. In that 10-year period, equipment changed, aircraft got heavier and vehicles got larger. This will also be true for the LHA-6 class as procurement will begin 2011, and it is not expected in the fleet until 2021. During this 10-year time frame, it is incumbent of the Navy and Marine Corps to keep future

equipment modifications within the parameters of the ship. There is little sense in modifying the largest and slowest item in the production phase to accommodate newer equipment that have a shorter procurement and production cycle, all of which quickly drives the Navy out of its budget and fiscal conservation.

As the QDR shifted the services' focus to rebalancing the current capabilities and more effective fiscal management, the effects on the amphibious fleet are nationally linked. Unless the Navy focuses on a strong global Navy through global presence, the amphibious fleet is looking towards lean times. Strong advocates for amphibious shipping are needed in the Navy to ensure stronger controls on procurement and shipbuilding, and solidify amphibious fleet employment, training, and maintenance. The Navy and Marine Corps combination is a vital aspect of the nation's military arsenal, the multi-mission platform able to continued meet the varied demand for global naval presence.

### Conclusion

Are we missing the boat? The answer is definitely yes, yet do the Navy and Marine Corps' leadership have any choice? In today's world, the competing requests for the United States Navy and Marine Corps are increasing; the mantra of a global navy and global presence is taking its toll on the forces. The necessity of the 2.0 MEB amphibious lift requirement enables the justification of the amphibious ships. Even though there may be little likelihood of a MEB size amphibious assault, the size of that capability allows the Navy and Marine Corps to maintain its global presence.

Operating within the fiscal constraints, the Navy and Marine Corps leadership have whittled the amphibious fleet to an expected mix of 11 large decks (LHA/LHD), 11 dock ships (LPD), and 11 troop transports (LSD), to support the Marine Corps amphibious requirement and



meet the current national strategy. This “right mix” of amphibious ships, to be achieved by 2016, needs a strong Navy advocate to maintain the focus on the amphibious fleet, the current issues and its future evolution. The Marine Corps has publically voiced the concerns and are re-establishing their amphibious character, the Navy must do the same and not let this national asset and vital capability struggle to balance the Marine Corps requirements and global tasking. A strong voice from within the Surface Navy community is needed to capitalize on the opportunities for change with the QDR, to minimize the obstacles to both the current and future fleet, and to fulfill the Navy’s support requirement to the Marine Corps, reducing the number of “missing” boats.

## *Lists, Tables and Figures*

### **List 1. 2010 QDR Main Elements of U.S. Force Structure FY2011-15 <sup>35</sup>**

*Department of the Navy:*

10 – 11 aircraft carriers and 10 carrier air wings  
 84 – 88 large surface combatants, including 21 – 32 ballistic missile defense-capable combatants and Aegis Ashore  
 14 – 28 small surface combatants (+14 mine countermeasure ships)  
 29 – 31 amphibious warfare ships  
 53 – 55 attack submarines and 4 guided missile submarines  
 126 – 171 land-based intelligence, surveillance, reconnaissance (ISR) and electronic warfare (EW) aircraft (manned and unmanned)  
 3 maritime prepositioning squadrons 30 – 33 combat logistics force ships (+1 Mobile Landing Platform [MLP])  
 17 – 25 command and support vessels (including Joint High Speed Vessels, 3 T-AKE Class dry cargo/ammunition ships, 1 mobile landing platform)  
 51 roll-on/roll-off strategic sealift vessels

### **Table 1. Projected Amount of Amphibious Lift Under FY2009 30-Year Plan <sup>36</sup>**

(Relative to 2.0 MEB lift requirement, Resulting from Amphibious Force Supported by FY2009 Navy 30-Year Shipbuilding Plan)

	2008	2009	2010	2015	2020	2025	2030	2035
<b>Troops</b>	1.46	1.35	1.38	1.45	1.42	1.35	1.49	1.59
<b>Vehicle (sq. ft.)</b>	0.77	0.75	0.80	0.90	0.88	0.93	1.05	1.17
<b>Cargo (cu. ft.)</b>	2.02	1.90	1.92	2.07	2.04	1.95	2.28	2.49
<b>VTOL aircraft</b>	1.02	0.93	0.94	1.07	1.06	0.97	1.18	1.31
<b>LCACs</b>	1.81	1.75	1.79	1.79	1.75	1.77	1.65	1.50

**Source:** U.S. Marine Corps data provided to CRS, March 11, 2008. Calculations are based on 15 operational ships per MEB. A figure of 1.0 in a cell would meet 100% of the 2.0 MEB lift goal for that lift element; a figure of 1.5 would exceed by 50% the goal for that element; and a figure of 0.75 would meet 75% of the goal for that element.

Table 2: FY2011-2040 Long-Range Naval Vessel Construction Plan<sup>37</sup>

Fiscal Year	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Aircraft Carrier			1					1					1					1					1					1		
Large Surface Combatant	2	1	2	1	2	1	2	1	2	1	2	1	2	1	1	2	2	1	2	1	2	2	2	2	2	2	2	2	2	2
Small Surface Combatant	2	3	4	4	4	3	3	3	3	2	2	2	2	2	1	2	1	2	1	2	1	2	1	2	2	2	2	2	2	2
Attack Submarines	2	2	2	2	2	2	2	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	1
Ballistic Missile Submarines									1			1		1	1	1	1	1	1	1	1	1	1							
Amphibious Warfare Ships	1	1				1	1		1		2		1		2		1		2		1		2		1		1	1	1	
Combat Logistics Force						1		1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	
Support Vessels	2	1	3	2	4	2	3	3	3	4	2	3	3	2	1			1		2	1	1	2	2	2	2	2	2	2	2
Total New Construction Plan	8	12	12	11	12	11	12	11	13	10	11	10	11	8	13	7	7	3	2	11	8	8	11	12	10	7	10	9	10	7

Table 3: FY 2011-2040 Naval Battle Force Inventory<sup>38</sup>

Fiscal Year	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Aircraft Carrier	18	18	10	10	11	11	11	11	11	12	12	12	11	11	12	12	12	11	11	12	12	11	11	11	12	11	11	11	11	11
Large Surface Combatant	84	84	85	85	85	90	91	93	94	95	95	95	94	94	92	89	87	85	81	77	73	71	69	67	65	63	62	61	60	59
Small Surface Combatant	42	41	37	32	28	32	33	37	37	39	39	41	39	40	41	43	45	45	48	48	51	52	53	54	55	55	55	55	55	55
Attack Submarines	53	54	55	55	54	51	51	51	51	49	49	48	48	46	45	44	43	41	40	39	41	41	42	43	44	45	45	45	45	45
Cruise Missile Submarines	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	2	1												
Ballistic Missile Submarines	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	12	13	12	12	12	12	12	12	12	12	12	12	12
Amphibious Warfare Ships	29	30	30	30	31	33	33	33	33	33	34	34	35	35	35	35	35	35	34	33	33	32	31	33	33	33	32	29	29	28
Combat Logistics Force	29	29	29	30	30	30	30	30	30	31	29	29	28	28	28	28	26	25	25	25	24	25	25	25	25	25	25	27	27	28
Support Vessels	18	20	23	24	25	27	31	33	37	38	39	41	45	47	46	45	45	45	44	44	44	44	44	44	44	44	44	44	44	44
Total Battle Force Inventory	264	267	267	265	265	262	263	275	271	275	278	282	279	280	281	281	281	279	277	280	280	278	278	278	278	278	278	281	281	281

## CNA- Navy at a Tipping Point – Fleet Options

Figure 1 – 2-Hub Navy<sup>39</sup>

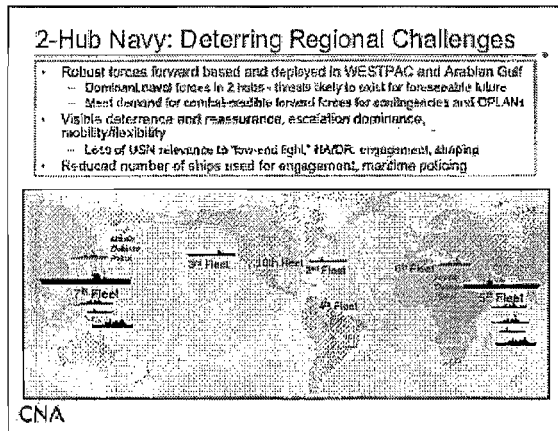


Figure 4 – Surge Navy<sup>42</sup>

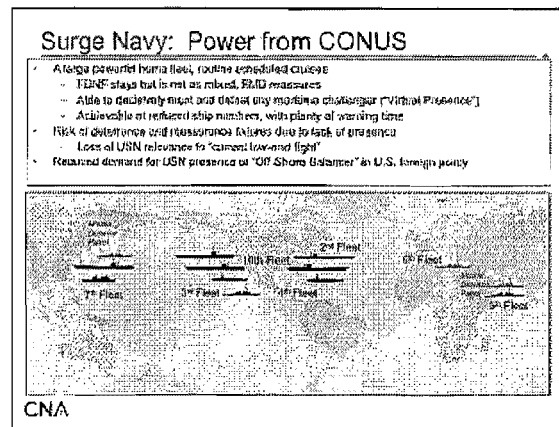


Figure 2 – 1+ Hub Navy<sup>40</sup>

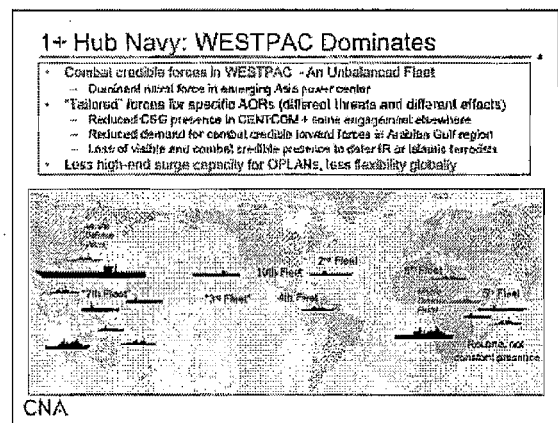


Figure 5 – Shrinking the Status Quo Navy<sup>43</sup>

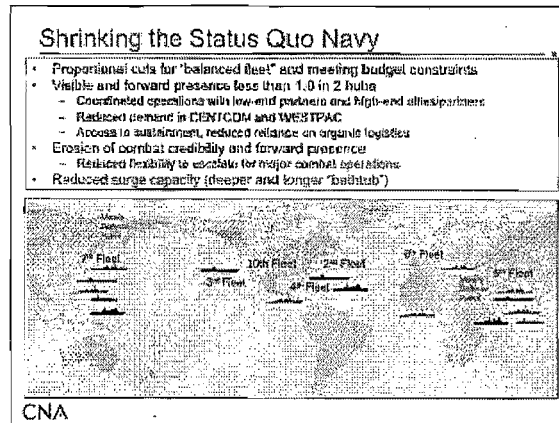


Figure 3 – Shaping Navy<sup>41</sup>

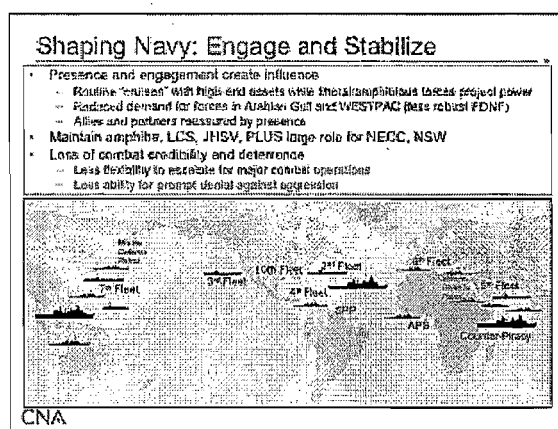
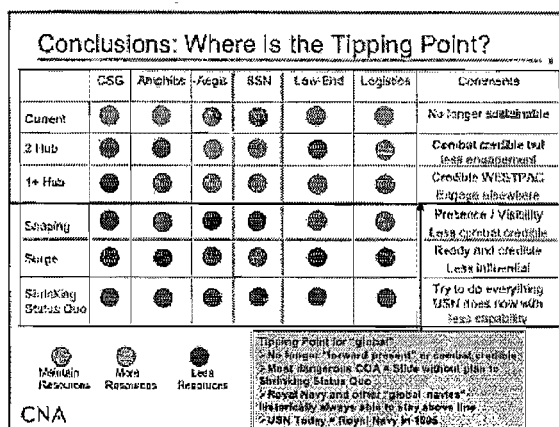


Figure 6 - Conclusions<sup>44</sup>



- Endnotes -

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- <sup>21</sup> Department of the Navy, *Long-Range Plan for Construction of Naval Vessels for FY2011*, 20.
- <sup>22</sup> USMC Combat Development Command, *Amphibious Operations in the 21<sup>st</sup> Century*, 12.
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- <sup>30</sup> Ibid, 30.
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<sup>41</sup> Ibid, 30-32.

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